



DoD Global Influenza Surveillance Program Summer 2005 Report

Air Force Institute for Operational Health



Due to database transfer issues, AFIOH has not been able to generate a report since the beginning of May. This report will thus cover all results from mid-May to 15 August 2005.

NEW ISOLATES COLLECTED JULY – 15 AUGUST: 4 Influenza A, 50 Influenza B

The 50 influenza B specimens were collected during a [respiratory outbreak in Nepal](#) during July. Four early season specimens, all influenza A/H3N2 were collected from Andersen AFB and Kadena AB. For a summary of influenza isolates by base, click [here](#).

In addition, 6 influenza A and 11 influenza B were diagnosed in May, all from a [Luke AFB outbreak](#). In June, 1 influenza A and 2 influenza B were diagnosed, all from Tripler.

SUMMARY:

Overall Results

Since 15 May 2005 to 15 August, the Epidemiological Surveillance Division (AFIOH/SDE) has processed 189 specimens as part of the influenza surveillance program. Of those specimens, 10 (5.3%) were positive for influenza A, and 63 (33%) were positive for influenza B. In addition, 2 specimens are still being processed. Click [here](#) for a graph of specimen totals and influenza percent-positive by week.

For a table of specimens submitted by individual sentinel sites, click [here](#).

Besides influenza A and B, the AFIOH lab also tests specimens for adenovirus, HSV, RSV, enterovirus, and parainfluenza pathogens. For all viral results by week, click [here](#). Viral results are also broken down by [MAJCOM](#).

Subtyping

Since 15 May 2005, we have [subtyped](#) 73 influenza isolates using either polymerase chain reaction (PCR) or hemagglutination-inhibition (HI): 10 are Influenza A/H3N2, 59 are Influenza B/Hong Kong, and 3 are Influenza B/Shanghai. Of the Influenza B/Hong Kong subtypes, 49 are from the [Nepal outbreak](#).

Age/Military Status

Overall, Influenza A seems to be dominating all [age](#) and [military status](#) categories in this flu season.

Locations

Numbers and graphs for individual bases, as well as graphs for CDC regions, can be found on the AFIOH Influenza Surveillance website: <https://gumbo.brooks.af.mil/pestilence/Influenza/>

COMMENTS ON CURRENT TRENDS:

Nepal Outbreak

In early July, a Walter Reed/AFRIMS Research Unit Nepal (WARUN) team investigated a respiratory outbreak in southeastern Nepal at the request of Association of Medical Doctors of Asia-Nepal. Sixty-six

specimens were collected from refugees at Bhutanese Refugee Camps who met the case definition for influenza-like illness. Rapid tests performed on-site were >50% positive for influenza B. Specimens were forwarded to AFRIMS and AFIOH.

At AFRIMS, 54 of the 66 specimens were found to be influenza B positive by PCR screening using AFIOH-designed primers, utilizing training given by an AFIOH molecular biologist during a May site visit. Results from AFIOH culture and AFRIMS PCR testing will be compared for a validation study, an important step in gauging the accuracy and reliability of PCR screening for use as a potential screening tool for avian influenza.

At AFIOH, culture findings overall confirmed AFRIMS PCR findings: 50 influenza B, 1 adenovirus, 2 parainfluenza, and 13 negative. Forty-nine of the influenza B isolates have been subtyped as Hong Kong-like, with subtyping results for the remaining isolate pending.

Genetic analysis of hemagglutinin done on 25 isolates revealed that the majority of these Nepal isolates appear to form a distinct branch compared to B/Hong Kong/330/01 and the recent isolates from Luke AFB. Seventeen specimens have been sent to CDC for further analysis. Sequencing information must be complemented with antigenic HI analysis (done at CDC) before drawing conclusions as to the immunogenicity of these strains.

AFRIMS/WARUN conducted a similar outbreak investigation in Nepal in July 2004. Influenza A/H3N2 isolates from that outbreak were similar to the vaccine-deviant California strain that predominated late last season (see [Luke T. Daum, et al, *Emerging Infectious Diseases*, August 2005](#)). It will be interesting to see whether the influenza B variant from this outbreak also becomes dominant during the next influenza season as well.

Luke Outbreak

In the latter half of June, Luke AFB had a respiratory outbreak, primarily among children. For the 34 cases in which specimens were submitted, results were mixed: 6 influenza A/H3N2, 9 influenza B/Hong-Kong like, 2 influenza B/Shanghai-like, 4 adenovirus, and 13 negatives. Twenty-nine of the cases were under the age of 14, including all of the positive results. ESSENCE respiratory syndrome counts did not show anything unusual; this might be expected if the outbreak were confined to a cohort (e.g. children at a day care center) rather than affected the entire base. However, efforts to epidemiologically link the cases to the base Child Development Center were inconclusive.

Influenza Isolates from Kadena/Guam

In July, AFIOH received 20 specimens from Kadena AB, Japan: 3 influenza A, all H3N2, 1 enterovirus, and 17 negative. However, ESSENCE respiratory syndrome counts were as expected, and the base PH also did not note any trends. Also, base PH did not find any link to recently deployed personnel. Civilian surveillance by the Japanese government shows a trickle of influenza cases from Okinawa during recent weeks. One specimen from Guam in August 2005, influenza A, as yet unsubtyped.

Updated data are available on our influenza website:
<https://gumbo.brooks.af.mil/pestilence/Influenza/>

NATIONAL INFLUENZA ACTIVITY: CDC

<http://www.cdc.gov/ncidod/diseases/flu/weeklychoice.htm>

Weekly CDC reports will resume 2 October 2005.

INTERNATIONAL INFLUENZA ACTIVITY: WHO

<http://globalatlas.who.int/globalatlas/dataQuery/default.asp>

Week in review: **Weeks 29-30**

South America: Argentina, Brazil and Uruguay reported sporadic activity.

Asia: Australia reported a regional outbreak. New Zealand reported a local outbreak. China and Thailand reported sporadic activity.

Europe: No reports of activity.

North America: No reports of activity.

Africa: South Africa reported sporadic activity,

Note: WHO review contains information from the previous 2 weeks in order to capture delayed reports from countries.

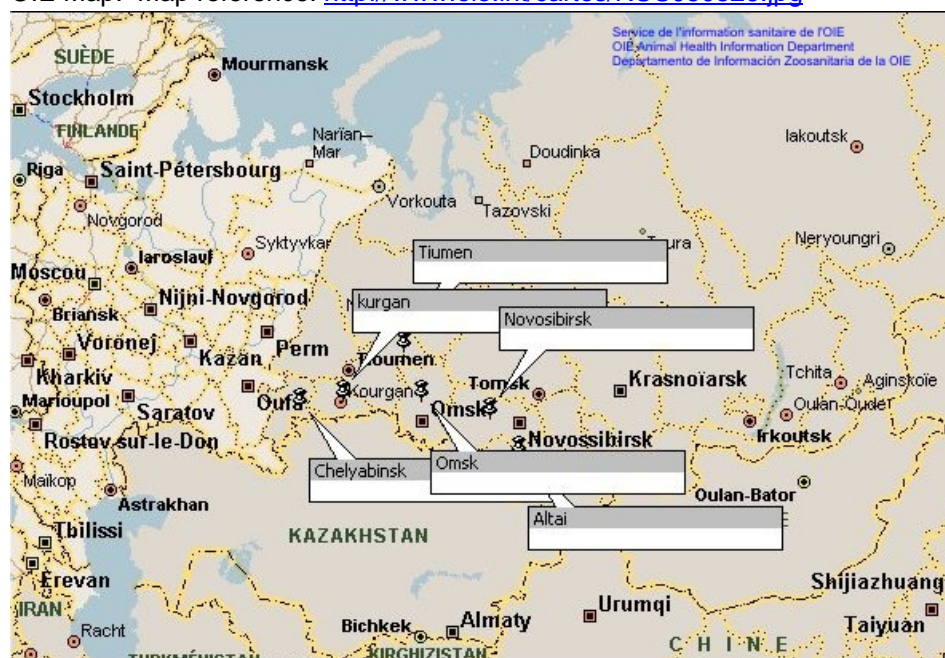
ADDITIONAL INFORMATION:

Avian Influenza Update:

On August 5, 2005 the Ministry of Health in Viet Nam confirmed three more case of human infection with H5N1. The cases were from Ha Tay Province, Tra Vinh Province, and Ho Chi Minh City. The patients from Tra Vinh and Ho Chi Minh City died. Since mid December 2004, the total number of confirmed cases of avian influenza in Viet Nam tally 63 (case fatality rate of 0.317). Viet Nam has reported the majority of cases, but cases have also been confirmed in Thailand, Cambodia, and Indonesia.

Avian influenza outbreaks among domestic poultry populations have emerged in a number of new locations. Russia and Kazakhstan reported outbreaks in late July, where H5N1 was confirmed as the causative agent. The Russian outbreak continues to spread west, as far as Kalymkia in southern Russia. Avian influenza deaths among migratory birds are also of concern. Mongolia reported the death of 87 migratory birds due to influenza A, but the virus strain has not yet been determined. Kazakhstan and Russia have also detected influenza deaths among migratory birds.

OIE Map. Map reference: <http://www.oie.int/cartes/RUS050826.jpg>



For additional information, please see: http://www.who.int/csr/disease/avian_influenza/en/

It should be noted that H5N1 does not spread easily from poultry to humans, but the possibility exists and each new human infection represents another opportunity for the virus to become more transmissible. According to WHO, "The emergence of an H5N1 strain that is readily transmitted among humans would mark the start of a pandemic". Therefore, the development of a vaccine to protect against H5N1 is critical for preventing pandemic flu. The US National Institute of Allergy and Infectious Diseases announced the results of clinic trials of a vaccine to protect against H5N1 avian influenza. Resistance to the strain was conferred to a small number of adults.

For additional information, please see:

<http://usinfo.state.gov/gi/Archive/2005/Aug/11-155290.html>

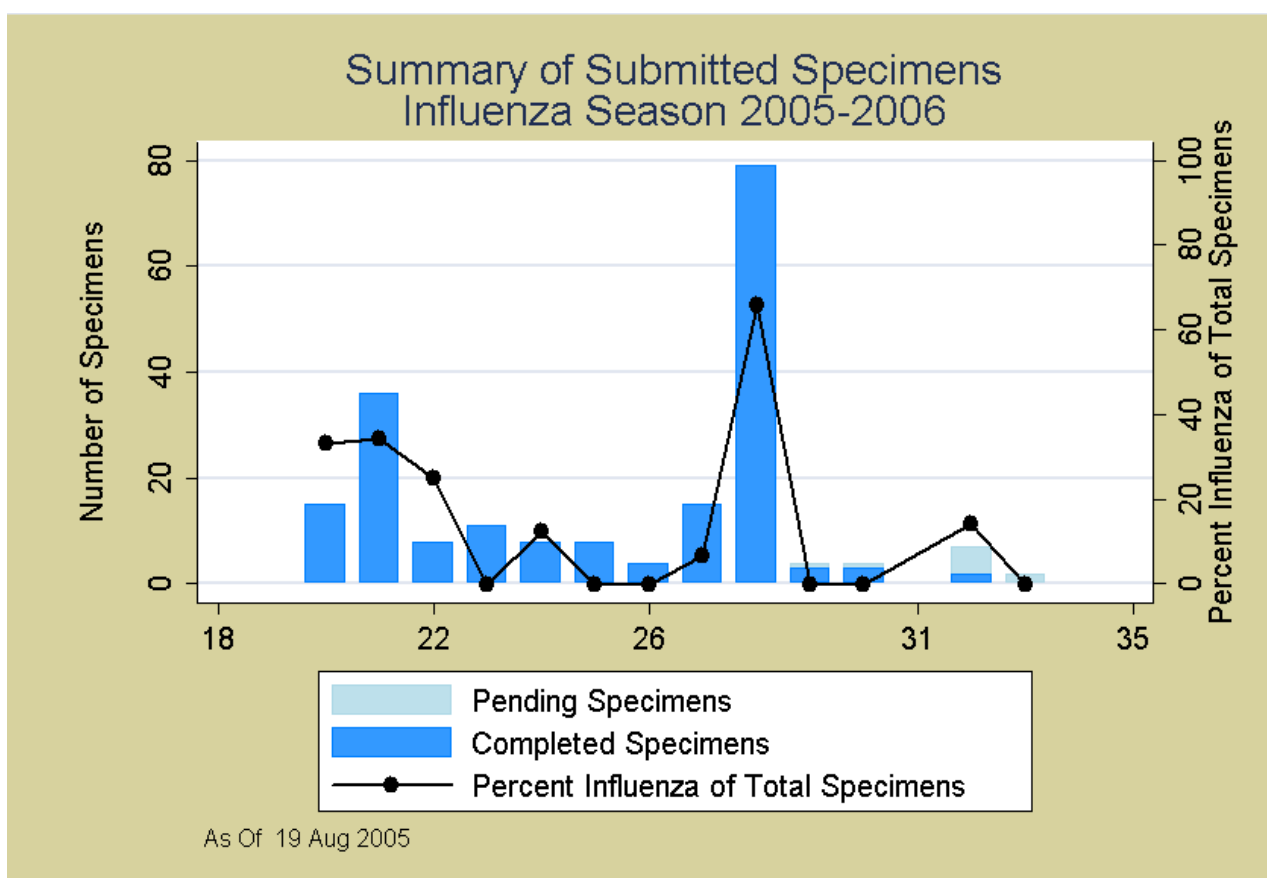
Pandemic Preparedness

The DoD is currently planning a response to pandemic/avian influenza. More specifically, the AFIOH Epidemiology Surveillance Division Laboratory is preparing a protocol to address likely scenarios resulting from a pandemic (i.e., prioritizing specimens for sequencing, security of base/building, assuring adequate supplies, and personnel, among others). Updates will be provided as the plan develops.

Influenza-Associated Pediatric Deaths: No recent reports.

Table 1: Newly Identified Influenza Specimens from May to Aug 15 2005, by Base

Site Name	Influenza A	Influenza B
Anderson AFB, Guam	1	
Kadena AB, Japan	3	
Luke AFB, AZ	6	11
Tripler	1	2
Nepal (AFRIMS)		49



* The week 28 peak reflects specimens collected from the Nepal outbreak investigation, July 12-14

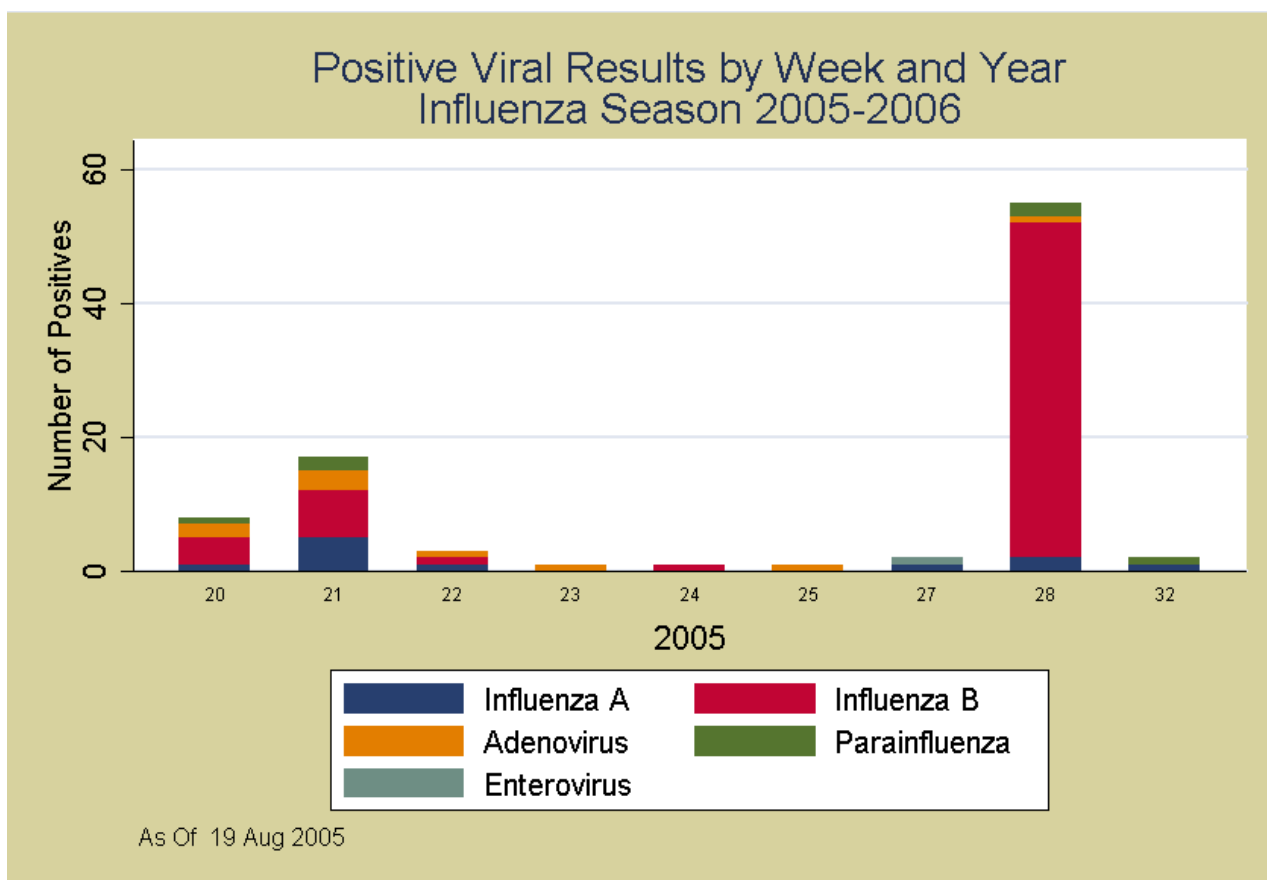
Tables 2 and 3: Respiratory Specimens Submitted by Sentinel Sites, and by Overseas Laboratories from 15 May to 15 Aug 2005 (including Incomplete Processing)

AETC	Specimens Submitted
Maxwell AFB, AL	0
Sheppard AFB, TX	1
AMC	Specimens Submitted
Andrews AFB, MD	0
Travis AFB, CA	2
McGuire AFB, NJ	0
Scott AFB, IL	15
CENTCOM	Specimens Submitted
Ganci AB, Kyrg	0
Al Udeid AB, Qatar	0
Balad AB, Iraq	0
PACAF	Specimens Submitted
Kadena AB, Japan	24
Kunsan AB, Korea	1
Andersen AFB, Guam	5
Yokota AB, Japan	0
Misawa AB, Japan	0
Osan AB, Korea	0
Elmendorf AFB, AK	0
USAFA	Specimens Submitted
US Air Force Academy, CO	0

USAFE	Specimens Submitted
Incirlik AB, Turkey	0
Aviano AB, Italy	0
Ramstein AB, Germany	0
RAF Lakenheath, UK	1
ARMY	Specimens Submitted
Landstuhl RMC, Germany	0
Tripler AMC, HI*	3
COAST GUARD	Specimens Submitted
CGS Ketchikan, AK	0
NAVY	Specimens Submitted
NMC San Diego, CA	0
NH Yokosuka, Japan	0
Bremerton NS, WA	0
NAB Little Creek, VA	0
<i>TOTAL for SENTINEL SITES</i>	49

OVERSEAS LAB	Specimens Submitted
AFRIMS, Thailand	0
AFRIMS, Nepal	66
Nicaragua	0
NMRC-D, Peru	110
<i>TOTAL for OVERSEAS LABS</i>	176

* Includes specimens from Hickam AFB and NH Pearl Harbor



* The week 28 peak reflects specimens collected from the Nepal outbreak investigation, July 12-14

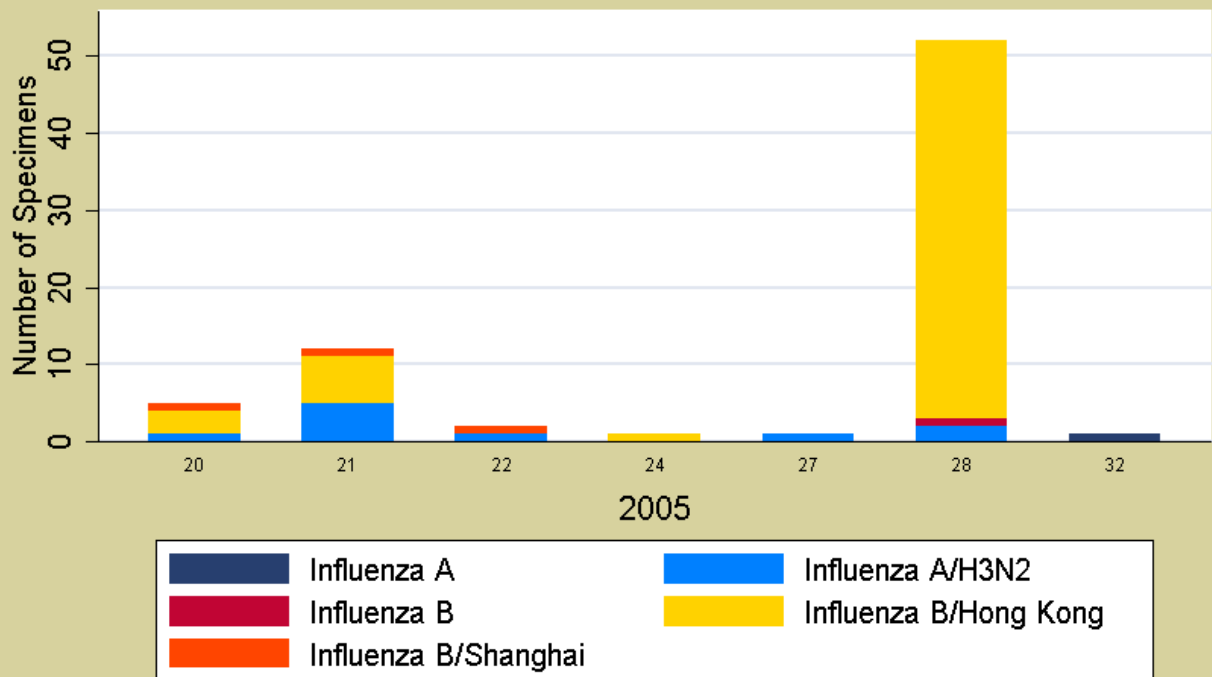
Table 4. Summary of Specimens Processed since 15 May 2005 from All Sites by Continent

Location	Results of Specimens Processed during current week*				
	Negative	Influenza A	Influenza B	Adenovirus	Other
TOTAL	100	10	63	8	6
NORTH AMERICA	53	6	11	7	3*
PACOM	36	4	52	1	3**
EUCOM	1	0	0	0	0
CENTCOM	6	0	0	0	0
SOUTH AMERICA	4	0	0	0	0

Comments: * 3 Parainfluenza

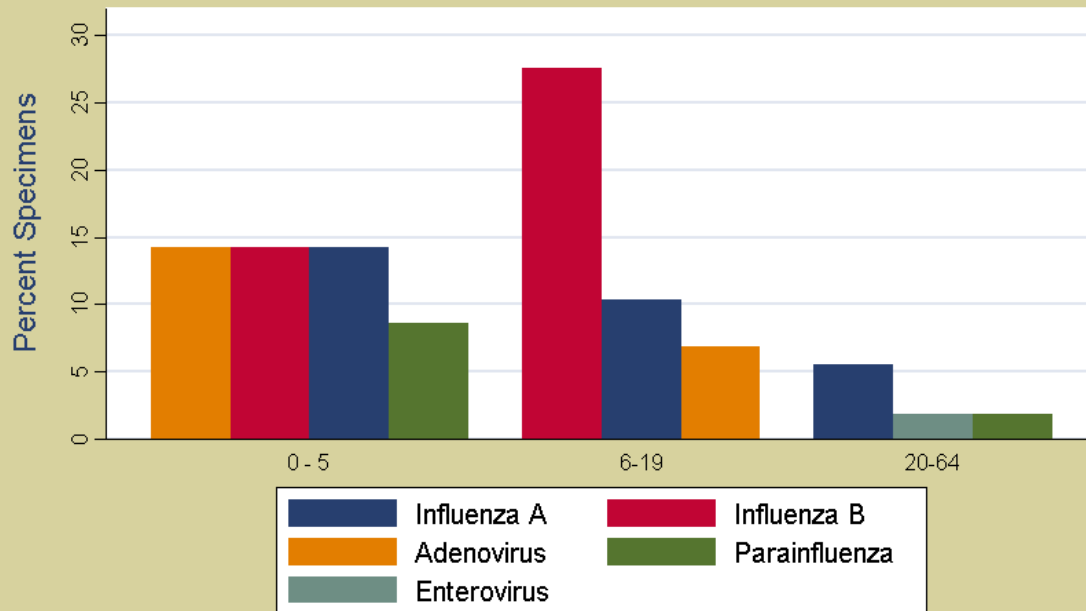
**1 Parainfluenza, 1 Enterovirus

Subtyping Results by Week and Year Influenza Season 2004-2005



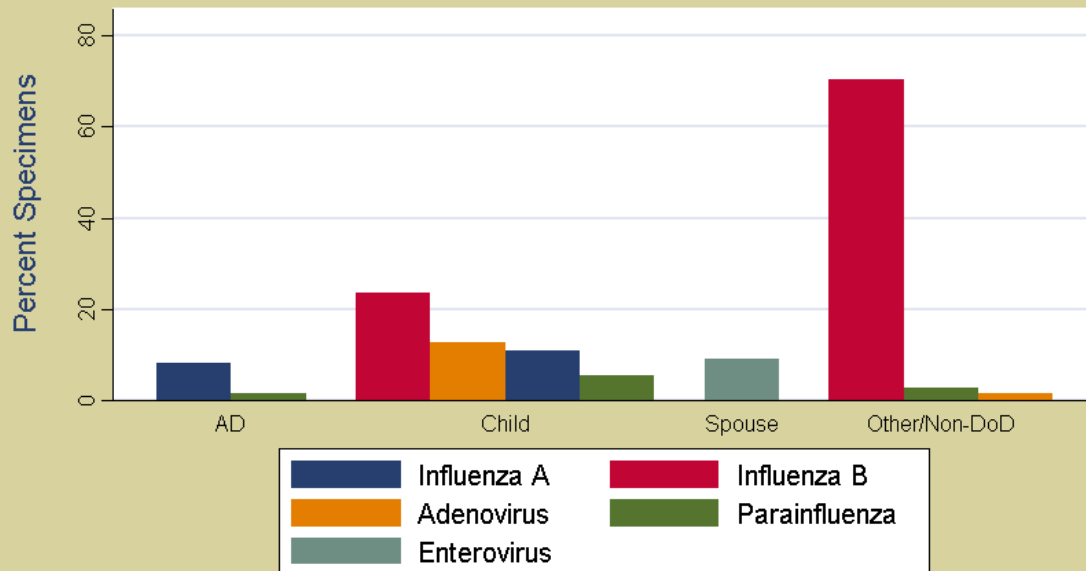
As Of 19 Aug 2005

Percent of Respiratory Virus Submissions by Age Group
Influenza Season 2005-2006



As of 19 Aug 2005

Percent of Respiratory Virus Submissions
by Family Military Prefix
Influenza Season 2005-2006



As of 19 Aug 2005